



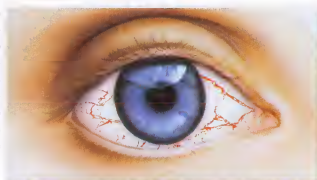
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Dry Eyes

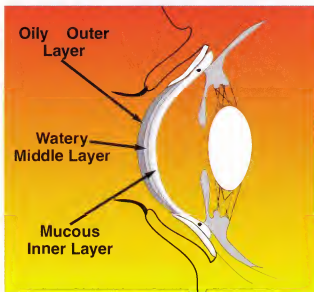
Dry, Stinging, Burning Eyes
Caused by Improper
Lubrication or a Lack of Tears



Dry eye, a common eye problem, can be caused by a lack of tear production or rapid evaporation. Tears normally keep the eyes moistened and lubricated. However, stinging, burning, dryness, and redness will result if tears are not sufficient to keep the eyes wet and comfortable. While discomfort is the primary result of dry eyes, infection and corneal scarring may occur if left untreated.

What is tear film?

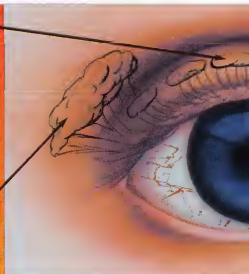
The tear film, which constantly covers the eye, is made up of three layers. The oily outer layer reduces evaporation of the tears. The watery middle layer cleanses the eye and washes away foreign particles or irritants. The inner layer consists of mucus which coats the surface evenly and allows the tears to adhere to the surface of the eye.



Tear film, composed of three layers, keeps the eye moist and lubricated

Meibomian Glands (also called Tarsal Glands) produce the oily part of tears

Lacrimal Gland (produces the watery part of tears)



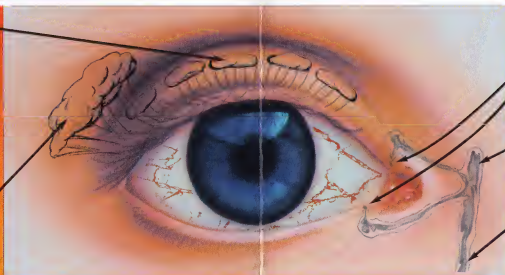
Tear Production

Tears flow into the eye from two separate glands. The lacrimal glands, which are located above the eye, produce watery tears to moisten the eye. These tears also serve as "crying tears" which are released in response to injury and emotion. The tarsal glands, parallel strands of glands located within the inner surfaces of the eyelids, contribute to the tear film which constantly moistens and lubricates the eye.

The tear film is spread over the eye by blinking, keeping the surface of the eye smooth and optically clear. Tears also protect the eye from infection, since they contain a substance called lysozyme that acts as an antibacterial agent. Tears drain from the eye through two small openings called the upper and lower puncta. From the puncta the tears drain through the tear sac and out into the nasal passages through the nasolacrimal duct.

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Puncta

Tear Sac

Nasolacrimal Duct (leads to nasal passages)

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What are the symptoms of dry eyes?

Patients with dry eyes often complain that their eyes feel gritty, itchy and dry. Other common symptoms include burning, stinging, redness, stringy mucus and sensitivity to light. Some patients may experience their eyelids sticking together in the morning. Patients with dry eyes may also have difficulty wearing contact lenses, which normally float on top of the tear film. If not enough tear film is produced, irritation and redness may limit the amount of contact lens use.

Surprisingly, watering of the eyes is also a symptom of dry eyes, as excess tears are produced in response to irritation. However, these excess tears are "crying tears" which consist mostly of water. The excess tears lack the oil necessary to keep them from evaporating and, therefore, do not function to lubricate the eye.

Blepharitis is a chronic inflammation of the eyelids. A common problem in both children and adults, blepharitis causes swelling, itching and irritation of the eyelids. There are several causes of blepharitis but the most common are seborrheic and Staphylococcus (staph).

The eyelid

The outer layer of the eyelid is composed of skin, while the inside of the eyelid is lined with moist tissue. Muscles and glands are located between the skin and the moist lining. The eyelashes are located on the eyelid margins, the areas which come together when the eyelid is closed. Tiny openings from which glands secrete the oily part of tears are also located on the eyelid margin. The eyelid margins are the areas most often affected by blepharitis.

What is seborrheic blepharitis?

Seborrheic blepharitis is associated with dandruff of the scalp and may be part of an overall skin disease (seborrhea) which also affects the chest, back, and behind the ears. With seborrheic blepharitis, the glands of the eyelid produce an abnormal quantity and quality of tear film, which normally coats, protects, and lubricates the eye. Several factors including hormones, nutrition, general physical condition, and stress may contribute to the development of this condition.

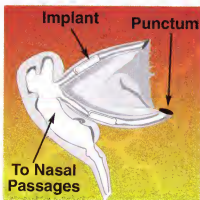


What are the symptoms of seborrheic blepharitis?

This form of blepharitis is characterized by redness of the eyelids. Scaling and flaking around the eyelashes are also common. The production of abnormal tear film causes the formation of greasy, waxy scales. These scales, which accumulate at the base of the eyelashes, flake off easily.

What is staph blepharitis?

Staph blepharitis is a more severe condition which often begins in childhood and continues through adulthood. Infective in nature, staph blepharitis is caused by bacteria (Staphylococcus aureus).



In one type of treatment for dry eyes, a punctum plug or implant may be used to prevent tears from draining from the eye too quickly.

increase in the amount of tears on the surface of the eye.

How are dry eyes treated?

Artificial tears, ointments and gels are the most common treatment for dry eyes. Eye drops are used to lubricate the eyes and replace missing moisture. Some patients who are sensitive to preservatives require special preservative free artificial tears. Slow release inserts, filled with medicine and placed just inside the lower lid, which gradually release moisture during the day may also be helpful. An ointment at bedtime may be required in more severe cases.

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Patients who suffer from dry eyes can also take steps to prevent the evaporation of tears. Using a humidifier to add moisture to the air and avoiding smoke, wind and other irritating conditions may provide relief.

If artificial tears alone fail to provide sufficient relief from dry eyes, soft contact lenses (those which are indicated for use as bandage lenses), may be used to keep moisture on the surface of the eye. Soft contact lenses have a tendency to absorb water and other fluids and act as a bandage which protects the cornea.

In some cases, the punctum may be temporarily narrowed or sealed to keep the tears from draining out of the eye quickly. If improvement is noted the punctum may be blocked by the insertion of permanent punctal plugs. Unlike the dissolvable type used in testing, these plugs remain in place unless removed. The punctum can also be narrowed or blocked using surgical techniques or lasers. This procedure can usually be performed in the office and is painless, as a local anesthetic is administered before the treatment. Although it is possible to reopen the punctum once it has been closed, the need to do so is rare.



If you are suffering from dry eyes or other eye discomforts, you should obtain a complete eye examination. Left untreated dry eye can lead to other more serious conditions including corneal ulcers, infection and conjunctivitis.